

***Amendments to the Claims***

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-93. (Canceled)

Claim 94. (Currently Amended) A vaccine An immunogenic composition comprising an isolated recombinant PMPE polypeptide comprising a polypeptide encoded by a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 1 fused to a nucleic acid molecule encoding a histidine affinity ((H)<sub>6</sub>) domain, wherein an effective amount of said immunogenic composition administered to female mice reduces *Chlamydia trachomatis*-induced infertility.

Claim 95. (Currently Amended) A vaccine An immunogenic composition comprising an isolated recombinant PMPE polypeptide comprising the amino acid sequence of SEQ ID NO: 2 fused to an amino acid sequence comprising a histidine affinity ((H)<sub>6</sub>) domain, wherein an effective amount of said immunogenic composition administered to female mice reduces *Chlamydia trachomatis*-induced infertility.

Claims 96-98. (Canceled)

Claim 99. (Currently Amended) The vaccine The immunogenic composition of claim 94 or 95, further comprising one or more adjuvants or immunostimulatory compounds.

Claim 100. (Currently Amended) The vaccine The immunogenic composition of claim [[94 or 95]] 99, wherein the one or more adjuvants or immunostimulatory compounds are selected from the group consisting of alum, mLT, QS21, MF59, CpG DNA, MMPL, LT, LTR192G, 3D-mPL, Bacille Calmette-Guerine (BCG), calcium phosphate and PLG.

Claim 101. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim [[94 or 95]] 99, comprising one adjuvant or immunostimulatory compound.

Claim 102. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim [[94 or 95]] 99, comprising two different adjuvants or immunostimulatory compounds.

Claim 103. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 94 or 95, additionally comprising a lipid, lipoprotein, phospholipid, lipooligosaccharide, lipopolysaccharide, protein, attenuated organism, inactivated whole cell, or one or more combinations thereof.

Claim 104. (Canceled)

Claim 105. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 103, wherein the protein is another protein of *Chlamydia*.

Claim 106. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 105, wherein said another protein of *Chlamydia* is the HMW (High Molecular Weight) protein of *Chlamydia trachomatis*.

Claim 107. (Currently Amended) ~~A vaccine~~ An immunogenic composition comprising:

an isolated polypeptide comprising the mature putative membrane protein E (PMPE) contained in SEQ ID NO: 2; and

a carrier;

wherein an effective amount of said ~~vaccine~~ immunogenic composition administered to female mice reduces *Chlamydia trachomatis*-induced infertility.

Claims 108 - 130. (Canceled)

Claim 131. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 107, wherein said isolated polypeptide is encoded by a nucleic acid comprising SEQ ID NO: 1.

Claim 132. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 107, further comprising one or more heterologous polypeptides.

Claim 133. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 132, wherein at least one of said heterologous polypeptides is fused to said PMPE polypeptide, and is selected from the group consisting of a pre or pro-sequence, an affinity purification sequence, and an immunogenic sequence.

Claim 134. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 132, wherein said one or more heterologous polypeptides are selected from the group consisting of Hin47, the *Chlamydia* high molecular weight (HMW) protein or a fragment thereof, and the *Chlamydia* major outer membrane protein (MOMP) or a fragment thereof.

Claim 135. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claims 107, further comprising one or more adjuvants.

Claim 136. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 135, wherein said one or more adjuvants are selected from the group consisting of alum, mLT, LTR192G, QS21, MMPL, CpG DNA, MF59, calcium phosphate, LT, 3D-mPL, Bacille Calmette-Guerine (BCG), and PLG.

Claim 137. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 107, wherein said PMPE polypeptide is conjugated to one or more targeting molecules.

Claim 138. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 137, wherein said one or more targeting molecules are selected from the group

consisting of vitamin B12, a bacterial toxin, a monoclonal antibody, a lipid, a protein, a nucleic acid, and a carbohydrate.

Claim 139. (Currently Amended) ~~A vaccine~~ An immunogenic composition comprising:

an isolated polypeptide comprising the putative membrane protein E PMPE (PMPE) encoded by the *Chlamydia* insert in plasmid M15pREP (pQE-pmpE Ct)#37 deposited under ATCC Accession No. PTA-2462; and

a carrier;

wherein an effective amount of said vaccine immunogenic composition administered to female mice reduces *Chlamydia trachomatis*-induced infertility.

Claim 140. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 139, further comprising one or more heterologous polypeptides.

Claim 141. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 140, wherein said one or more heterologous polypeptides are fused to said PMPE polypeptide, and selected from the group consisting of a pre or pro sequence, an affinity purification sequence, and an immunogenic sequence.

Claim 142. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 140, wherein said one or more heterologous polypeptides are selected from the group consisting of Hin47, the *Chlamydia* high molecular weight (HMW) protein or a fragment thereof, and the *Chlamydia* major outer membrane protein (MOMP) or a fragment thereof.

Claim 143. (Currently Amended) ~~The vaccine~~ The immunogenic composition of claim 139, further comprising one or more adjuvants.

Claim 144. (Currently Amended) The vaccine The immunogenic composition of claim 143, wherein said one or more adjuvants are selected from the group consisting of alum, mLT, LTR192G, QS21, MMPL, CpG DNA, MF59, calcium phosphate, LT, 3D-mPL, Bacille Calmette-Guerine (BCG), and PLG.

Claim 145. (Currently Amended) The vaccine The immunogenic composition of claim 139, wherein said PMPE polypeptide is conjugated to one or more targeting molecules.

Claim 146. (Currently Amended) The vaccine The immunogenic composition of claim 145, wherein said one or more targeting molecules are selected from the group consisting of vitamin B12, a bacterial toxin, a monoclonal antibody, a lipid, a protein, a nucleic acid, and a carbohydrate.